

WHAT IS CLAIMED IS:

1. A lithographic apparatus comprising:
an illumination system configured to provide a beam of radiation;
a support structure configured to support a patterning device, said patterning device imparting the projection beam with a pattern in its cross-section;
a substrate holder configured to hold a substrate;
a projection system configured to project the patterned beam onto a target portion of said substrate;
a scanning mechanism configured to move the patterned beam and said substrate relative to each other; and
a modulator configured to modulate an attribute of the patterned beam based on a scanning speed signal, wherein said scanning speed signal indicates a scanning speed of the patterned beam relative to said substrate.
2. The lithographic apparatus of Claim 1, wherein said modulated attribute comprises an effective power of the patterned beam.
3. The lithographic apparatus of Claim 1, wherein said modulated attribute comprises an effective power of a light source of said illumination system.
4. The lithographic apparatus of Claim 2, wherein said modulator modulates a repetition rate of said light source.
5. The lithographic apparatus of Claim 1, wherein said modulator is configured to drive a variable attenuator for attenuating the patterned beam.

6. The lithographic apparatus of Claim 1, wherein said modulator is configured to modulate a width of a slit of at least one of said projection system and said illumination system to modulate a width of the projection beam of radiation.

7. The lithographic apparatus of Claim 6, further comprising:
a first limiting element,
a second limiting element, and
a drive mechanism configured to drive said first and second limiting elements,

wherein said slit is formed between said first and second elements,
wherein said drive mechanism drives said first limiting element to accelerate said first limiting element to modulate said slit width, drives said second limiting element to accelerate said second limiting element to modulate said slit width after a delay in a manner that is substantially similar to the acceleration of said first element, and
wherein drive mechanism determines the acceleration of said first limiting element, said second limiting element, and said delay based on said scanning speed signal.

8. The lithographic apparatus of Claim 7, wherein said modulator is configured to modulate a total exposure energy per time unit of the patterned beam substantially proportional to the scanning speed.

9. The lithographic apparatus of Claim 8, wherein said modulator is configured to begin the projection of the patterned beam onto said target portion of said substrate during deceleration or acceleration.

10. A device manufacturing method, comprising:
providing a substrate;
providing a beam of radiation;
imparting said beam of radiation with a pattern in its cross-section;
projecting the patterned beam of radiation onto a target portion of said substrate;

moving the patterned beam and said substrate relative to each other; and
modulating an attribute of the patterned beam based a scanning speed of the
patterned beam relative to said substrate.

11. The device manufacturing method of Claim 10, wherein said
modulated attribute comprises an effective power of the patterned beam.

12. The device manufacturing method of Claim 10, wherein said
modulated attribute comprises an effective power of a light source of an illumination
system.

13. The device manufacturing method of Claim 10, wherein said
modulated attribute comprises a repetition rate of a light source of an illumination system.

14. The device manufacturing method of Claim 10, wherein said
modulated attribute comprises attenuating the patterned beam.

15. The device manufacturing method of Claim 10, further comprising
modulating a width of a slit of at least one of a projection system and an illumination
system to modulate a width of the projection beam of radiation.

16. The device manufacturing method of Claim 10, wherein said
modulated attribute comprises a total exposure energy per time unit of the patterned beam
substantially proportional to the scanning speed

17. A lithographic apparatus comprising:
means for providing a beam of radiation;
means for support patterning means, said patterning means imparting the
projection beam with a pattern in its cross-section;
means for holding a substrate;

means for projecting the patterned beam onto a target portion of said substrate;

means for moving the patterned beam and said substrate relative to each other; and

means for modulating an attribute of the patterned beam based on a scanning speed signal that indicates a scanning speed as the patterned beam and said substrate move relative to each other, in order to reduce sensitivity to fluctuations in the scanning speed.

18. The lithographic apparatus of Claim 17, wherein said modulated attribute comprises an effective power of the patterned beam.

19. The lithographic apparatus of Claim 17, wherein said modulated attribute comprises an effective power of a light source of said illumination system.

20. The lithographic apparatus of Claim 17, wherein said modulator modulates a repetition rate of a light source of said illumination system.

21. The lithographic apparatus of Claim 17, wherein said modulating means is configured to drive a variable attenuator for attenuating the patterned beam.

22. The lithographic apparatus of Claim 17, wherein said modulating means is configured to modulate a width of a slit of at least one of said projection system and said illumination system to modulate a width of the projection beam of radiation.

23. The lithographic apparatus according to Claim 22, further comprising:
first limiting means,
second limiting means, and
a drive means for driving said first and second limiting means,
wherein said slit is formed between said first and second limiting means,
wherein said drive means drives said first limiting means to accelerate said

first limiting means to modulate said slit width, drives said second limiting means to accelerate said second limiting means to modulate said slit width after a delay in a manner that is substantially similar to the acceleration of said first means, and

wherein drive means determines the acceleration of said first limiting means, said second limiting means, and said delay based on said scanning speed signal.

24. The lithographic apparatus of Claim 23, wherein said modulating means is configured to modulate a total exposure energy per time unit of the patterned beam substantially proportional to said scanning speed.

25. The lithographic apparatus of Claim 24, wherein said modulating means is configured to begin the projection of the patterned beam onto said target portion of said substrate during deceleration or acceleration.